

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF NORTH CAROLINA  
WESTERN DIVISION**

**Case Number: 5:20-CV-00142**

DYNATEMP INTERNATIONAL, INC. )  
and FLUOROFUSION SPECIALTY )  
CHEMICALS, INC., )

Plaintiffs, )

v. )

RMS OF GEORGIA, LLC d/b/a CHOICE )  
REFRIGERANTS, KENNETH M. )  
PONDER and LENZ SALES & )  
DISTRIBUTING, INC., )

Defendants. )

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R421A, LLC and RMS OF GEORGIA, )  
LLC d/b/a CHOICE REFRIGERANTS, )

Plaintiffs, )

v. )

DYNATEMP INTERNATIONAL, INC.; )  
HAROLD B. KIVLAN, IV; WILLIAM )  
GRESHAM; FLUOROFUSION )  
SPECIALTY CHEMICALS, INC.; and )  
DAVID COUCHOT, )

Defendants. )

**PLAINTIFFS R421A, LLC AND RMS  
OF GEORGIA, LLC'S OPENING  
CLAIM CONSTRUCTION BRIEF**

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### Ex. A: Summary of the Parties' Proposed Constructions

| Claim Term   | Plaintiffs' Proposed Construction  | Defendants' Proposed Construction   |
|--|--|---|
| apparatus designed for use with [a] chlorodifluoromethane refrigerant<br><br><u>179</u> : 21, 26, 31<br><u>706</u> : 1, 9<br><u>949</u> : 1, 7 | Plain and ordinary meaning   | Refrigeration system designed to use R-22   |
| refrigerant<br><br><u>179</u> : 21, 25, 26, 30, 31, 33, 35<br><u>706</u> : 1, 9, 17, 18<br><u>949</u> : 1, 5, 6, 7, 11, 13, 14, 15, 16, 18     | This term is not used by itself in the claims and does not need construction apart from the term(s) or phrase(s) with which it is used.  | substance used in a refrigeration system that, after compression in the system's compressor, gives off heat as it changes from gas to liquid in the condenser and, after injection into the evaporator, absorbs heat as it changes from liquid to gas before it is returned to the compressor |
| refrigerant composition<br><u>179</u> : 21, 26, 31, 33, 35<br><u>706</u> : 1, 9, 17, 18<br><u>949</u> : 1, 5, 6, 7, 11, 13, 14, 15, 16, 18     | a composition including one or more refrigerant gases and that may include components other than refrigerant gases   | a composition including two or more refrigerants  |
| refrigerant composition designed to achieve a phase change<br><br><u>179</u> : 21, 26  | a composition including one or more refrigerant gases and that may include components other than refrigerant gases, in which each of the one or more refrigerant gases can undergo a | refrigerant composition designed so that the refrigerants in the composition, after compression in a refrigeration system's compressor, give off heat as they change from gas to liquid in the  |

| Claim Term   | Plaintiffs' Proposed Construction  | Defendants' Proposed Construction   |
|--|--|---|
| <u>706</u> : 1, 9<br><u>949</u> : 1, 7   | phase change over the range of working temperatures in Table 2   | condenser and, after injection into the evaporator, absorb heat as they change from liquid to gas before they are returned to the compressor  |
| refrigerant gases<br><u>179</u> : 21, 26, 31<br><u>706</u> : 1, 9, 17<br><u>949</u> : 1, 5, 6, 7, 11, 13, 14, 16, 18                 | combination of refrigerant components in the refrigerant composition, each of which can undergo a phase change over the range of working temperatures in Table 2       | refrigerants that is are neither liquid nor solid at standard temperature (68°F) and pressure (one standard atmosphere)                       |
| non-refrigerant gas component / non-refrigerant gas components<br><u>179</u> :<br><u>706</u> : 1, 9, 17<br><u>949</u> : 5, 6, 11, 13 | components in the refrigerant composition, other than refrigerant gas components, that do not undergo a phase change over the range of working temperatures in Table 2 | component of a refrigerant composition that is not a refrigerant gas / components of a refrigerant composition that are not refrigerant gases |
| dew point<br><u>179</u> : 21, 23, 26, 28, 31, 33<br><u>706</u> : 1, 2, 9, 17, 18<br><u>949</u> :                                     | the temperature at which the vapor of a liquid forms the first bubble of liquid or dew, commencing condensation of that liquid   | the temperature at which the last drop of a liquid boils at a specified pressure  |

| Claim Term  | Plaintiffs' Proposed Construction  | Defendants' Proposed Construction  |
|---|--|--|
| bubble point<br><u>179</u> : 21, 23, 26, 28, 31, 33<br><u>706</u> : 1, 2, 9, 17, 18<br><u>949</u> : | the temperature at which a liquid makes the first bubble of vapor, commencing vaporization of the liquid | the temperature at which a liquid first begins to boil at a specified pressure |
| glide<br><u>179</u> : 24, 29<br><u>706</u> :<br><u>949</u> :  | the difference between the bubble point and dew point  | the difference between the bubble point and dew point at the same pressure     |

## EXHIBITS

“Ex. \_\_” refers to the exhibits attached to this Plaintiffs’ Opening Claim Construction Brief. Further, references to patent columns and lines are signified by the following shorthand: [Column No.] : [Line No.], e.g., Column 1, lines 1-5 is shown as Ex. 1, 1:1-5.



## I. INTRODUCTION

Plaintiffs R421A, LLC and RMS of Georgia, LLC (collectively, “Plaintiffs”) assert that Defendants’ R421A refrigerant product infringes at least 32 claims<sup>1</sup> across three different patents covering Plaintiffs’ R421A refrigerant product—namely, U.S. Patent No. 10,703,949, No. 9,982,179, and No. 8,197,706 (collectively, “the Patents-in-Suit” or “Asserted Patents”). Of the 32 asserted claims, nine claim terms are in dispute.

Plaintiffs have proposed constructions for seven of the nine disputed claim terms that are fully supported by and are consistent with the intrinsic record of the Patents-in-Suit and, where appropriate, relevant extrinsic evidence. As to the two remaining disputed terms, the term “refrigerant” does not appear by itself in the asserted claims and it would be improper to construe the term without reference to the context in which it is used in the asserted claims. The other term – “apparatus designed for use with [a] chlorodifluoromethane refrigerant” – should be given its plain and ordinary meaning, as there is nothing in the intrinsic record of the Patents-in-Suit to indicate that the inventors intended to deviate from the plain meaning of this term.

Defendants, in contrast, seek to define the term “refrigerant gas” in a transparent attempt to advance an invalidity argument that has been repeatedly rejected by the United States Patent and Trademark Office (“PTO”). Indeed, the PTO affirmatively stated in its order denying institution of the *inter partes* review (“IPR”) of the ’179 Patent that cyclopentane is a refrigerant gas. The PTO also concluded in its order that the Singh reference repeatedly cited by Defendants is cumulative of prior art previously presented to and considered by the PTO. Unhappy with the PTO’s prior determinations, Defendants now seek to re-litigate this manufactured invalidity issue via the construction of the term “refrigerant gas” in this case. Defendants’ attempt to re-litigate

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<sup>1</sup> Plaintiffs reserve the right to assert additional claims from the Asserted Patents if additional infringement is discovered during the ongoing Discovery process.

this issue via the construction of the term “refrigerant gas” is contrary to well-established claim construction principles, as well as contrary to the intrinsic and extrinsic evidence of record.

In addition to the IPR filed against the ‘179 Patent, Defendants filed two additional requests at the PTO to challenge the validity of the other Asserted Patents. In each of the three validity challenges, Defendants had an opportunity to address the constructions of the asserted claims and *did not offer constructions for many of the terms that they are now attempting to construe* – including the term “refrigerant gas.” Defendants’ present attempt to construe many of these terms after three unsuccessful challenges at the USPTO is further evidence that Defendants are merely seeking a different venue to reform and re-litigate their invalidity positions.

Accordingly, Plaintiffs respectfully request that the Court adopt their proposed construction for seven of the nine disputed claim terms, and reject Defendant’s improper attempt to construe the term “refrigerant gas” in an effort to advance an invalidity position that has been repeatedly rejected by the PTO.

## **II. THE ASSERTED PATENTS**

### **A. Background of the Technology of the Asserted Patents**

The Backgrounds of the Asserted Patents describe how, until recently, Chlorodifluoromethane (also known as “R-22”) was the major refrigerant used in residential air-conditioners, refrigerators, freezers, and window air-conditioning units. (Ex. B, 1:33-37; Ex. F, 1:38-42; Ex. I, 1:44-48). However, as of January 1, 2015, Congress has phased out the use of R-22 in new equipment and banned the sale of new R-22 entirely as of January 1, 2020. (Ex. B, 1:57-61; *see also* Exs. F, I). Because of the phaseout of R-22, millions of equipment owners with R-22-based air-conditioning units were to be left with no choice other than to seek replacement refrigerants to service their existing cooling units. (*Id.*, 2:22-26; *see also* Exs. F, I). Unfortunately, before the inventions of the Asserted Patents, R-22 replacements had a markedly different

temperature-pressure relationship than R-22 at most operating temperatures. (*Id.*, 2:47-50). Therefore, a need existed for a refrigerant composition that would fulfill the requirements of an existing R-22-based system, and operate as a replacement or substitute for R-22 in such a system, while also meeting the requirements of the Environmental Protection Agency (“EPA”) and other regulatory authorities concerned with environmental decay caused by use of R-22. (*Id.*, 2:55-59).

The considerations and concerns in the development and application of new refrigerants are interrelated with each other and include regulatory, technical, safety, efficiency, and practical considerations, among others. Ex. P, ¶39. A person having ordinary skill in the art (“PHOSITA”) in refrigerant formulation regularly works with precise amounts of chemical components or compounds, including combinations of various hydrocarbons, such as methanes, ethanes, propanes, and organic and inorganic compounds, among other components to form zeotrope and azeotrope refrigerant gas blends. *Id.* The refrigerant gases and blends evaporate at all different temperatures (and across temperature ranges), many well below 0°F, and are typically used and characterized under pressure at temperature ranges from -60°F to 200°F. *Id.*, ¶40. A PHOSITA in refrigerant formulation would not—and for safety reasons could not—overlook even one component in the development of a refrigerant. *Id.*, ¶41. A PHOSITA would instead expect every single refrigerant gas component, even in very small amounts, to impact the characteristics and properties of a refrigerant gas blend. *Id.*

The Asserted Patents are generally directed to a two-component refrigerant gas blend assigned the “R-421a” designation by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).<sup>2</sup> R-421a was developed as a direct replacement for the once-

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<sup>2</sup> The ASHRAE Standard 34 provides a standardized, shorthand naming convention and safety classification for refrigerants based on fluorochemical composition, toxicity, and flammability data.

popular R-22 refrigerant. Several substitute R-22 refrigerants were known at the time of the earliest priority date of the Asserted Patents and service technicians started to retrofit existing R-22-based refrigerant systems with substitute R-22 refrigerants long ago, with mixed results for a number of different reasons. Substitute R-22 refrigerants have differences in mass flow, operating pressures, and lubricants as compared to R-22, which present drawbacks when used in the existing R-22-based refrigerant systems. In order to accommodate or account for these drawbacks, and before the inventions described in the Asserted Patents were created, it was generally necessary to mechanically retrofit the R-22-based refrigerant systems before charging them with substitute R-22 refrigerants. This proved to be costly, technically difficult, and inefficient. R-421a was designed specifically to avoid these and other drawbacks.

Mr. Kenneth Ponder, the founder and current President of Plaintiffs, expended significant efforts to create a new, effective, and environmentally-acceptable alternative to R-22. The new refrigerant blends consist of a two-component blend of R-125 (pentafluoroethane) and R-134a (tetrafluoroethane) in certain proportions. On behalf of Plaintiff RMS, Mr. Ponder submitted the new refrigerant blend to ASHRAE for approval and assignment of an R-number designation, and ASHRAE approved Mr. Ponder's submission. Doc. 63.3, ¶ 23. ASHRAE assigned the R-421a designation to the new refrigerant blend, along with a safety classification, confirming to the industry that the new blend was novel, had been reviewed by an industry standards committee, and was considered safe. *Id.* The EPA also approved R421a as an R-22 substitute under the EPA's Significant New Alternatives Policy (SNAP) Program. Doc. 63.3, ¶¶ 24-25.

R-421a, which can include a lubricating oil in some cases, exhibits desirable properties that make it superior in many applications to the other commercially-available substitutes for R-22, including R-410a, R-417, R-407c, R-427a, R438a, and R-422d. The Asserted Patents are directed

to and cover the R-421a refrigerant blend and a lubricating oil in some claims. R-421a has been well-received in the industry, even winning awards for its usefulness and innovation. Doc. 63.3, ¶ 31.

## **B. The Asserted Patents Family**

The Asserted Patents are among a family of applications and patents (“the Patent Family”) filed by the Patent Owner. The table below identifies the entire Patent Family as of June 4, 2021. The Asserted Patents are bolded for reference and share a common specification.

| Reference          | App. No.          | Filing Date      | Status                |
|--------------------|-------------------|------------------|-----------------------|
| '049 Provisional   | 60/501,049        | 9/8/2003         | N/A (Provisional)     |
| '736 Application   | 10/937,736        | 9/8/2004         | N/A (Abandoned)       |
| <b>'706 Patent</b> | <b>12/961,045</b> | <b>12/6/2010</b> | <b>USP 8,197,706</b>  |
| <b>'179 Patent</b> | <b>13/493,491</b> | <b>6/11/2012</b> | <b>USP 9,982,179</b>  |
| <b>'949 Patent</b> | <b>15/989,655</b> | <b>5/25/2018</b> | <b>USP 10,703,949</b> |
| '049 Application   | 16/920,905        | 7/6/2020         | Pending               |

## **C. The '706 Patent**

The '706 Patent, titled “Refrigerant with Lubricating Oil for Replacement of R22 Refrigerant,” is generally directed to an apparatus and method for substituting ozone layer-damaging chlorodifluoromethane with less environmentally damaging refrigerant composition consisting of pentafluoroethane and tetrafluoroethane in R-22-based air-cooling systems. (Ex. B, Abstract).

### **1. The Prosecution History of the '706 Patent**

The application for the '706 Patent, U.S. Patent App. No. 12/961,045, was filed on December 6, 2010 and claims priority to provisional application no. 60/501,049 filed on September 8, 2003. (*See* Ex. B, p. 1). The Prosecution History of the '706 Patent indicates that the application

underlying the ‘706 Patent was thoroughly examined by the United States Patent and Trademark Office and was determined to meet the conditions for patentability having overcome the USPTO’s scrutiny. *See* Ex. C.

## **2. The Claims of the ‘706 Patent**

Plaintiffs assert that Defendants’ Dynatemp R-421A product infringes at least five claims of the ‘706 Patent. Independent claims 9 and 11 are method claims, while the remaining independent claim, claim 17, is an apparatus claim. Representative claim 1, is reproduced below:

1. In an apparatus designed for use with chlorodifluoromethane refrigerant, the improvement comprising substituting the chlorodifluoromethane with a refrigerant composition designed to achieve a phase change, the refrigerant composition comprising a combination of refrigerant gases, said refrigerant gases consisting of a blend of tetrafluoroethane and pentafluoroethane, the ratio of the tetrafluoroethane to the pentafluoroethane being selected such that the blend exhibits a dew point at about  $-32^{\circ}$  F. or a bubble point at about  $-41.5^{\circ}$  F., wherein the refrigerant composition further comprises non-refrigerant gas components, said non-refrigerant gas components including a lubricating oil, wherein the lubricating oil is present up to about 20% by weight of the refrigerant gases and is soluble in chlorodifluoromethane, tetrafluoroethane and pentafluoroethane wherein the lubricating oil is selected from the group consisting of naphthenic based lubricants and polyol ester.

Ex. B, Claim 1.

## **3. The *Inter Partes* Review of the ‘706 Patent**

Defendants filed a Petition seeking *inter partes* review of the ‘706 Patent before the Patent Trial and Appeal Board (PTAB) on November 27, 2020, which was assigned the review number IPR2021-00199. Ex. D. Defendants’ Petition in IPR2021-00199 includes a section on claim construction. (Ex. D, pp. 14-16). Defendants also provided the declaration of Dr. Eckhard A. Groll, who offered testimony supporting the same. (Ex. E, ¶¶ 78- 84). Defendants did not offer constructions for many of the terms they now seek to construe – including the term “refrigerant gases.” (Ex. D, pp. 14-16).

Following the Board’s decision to not institute an earlier-filed Petition for the ‘179 Patent,

discussed below, Defendants requested leave to file a motion to withdraw their Petition in IPR2021-00199 on May 11, 2021, which was subsequently granted by the Patent Trial and Appeal Board. *See* Ex. L. In their request, Defendants specified that they did not intend to file any subsequent petitions challenging the validity of U.S. Patent No. 8,197,706. *Id.*

#### **D. The ‘179 Patent**

The ‘179 Patent, titled “Refrigerant with Lubricating Oil for Replacement of R22 Refrigerant,” is generally directed to an apparatus and method for substituting ozone layer-damaging chlorodifluoromethane with less environmentally damaging refrigerants pentafluoroethane and tetrafluoroethane in chlorodifluoromethane-based air-cooling systems. (Ex. F, Abstract).

##### **1. The Prosecution History of the ‘179 Patent**

The application for the ‘179 Patent, U.S. Patent App. No. 13/493,491, was filed on June 11, 2012 and claims priority to provisional application no. 60/501,049 filed on September 8, 2003. (*See* Ex. F, p. 1). The Prosecution History of the ‘179 Patent indicates that the application underlying the ‘179 Patent was thoroughly examined by the United States Patent and Trademark Office and was determined to meet the conditions for patentability having overcome the USPTO’s scrutiny. *See* Ex. G.

##### **2. The Claims of the ‘179 Patent**

Plaintiffs assert that Defendants’ Dynatemp R-421A product infringes at least 13 claims of the ‘179 Patent. Claim 26 is a method claims, while independent claims 21 and 31 are apparatus/composition claims. A representative claim, claim 31, is reproduced below:

31. A refrigerant composition comprising a combination of refrigerant gases, the refrigerant gases consisting of a blend of tetrafluoroethane and pentafluoroethane, the ratio of the tetrafluoroethane to the pentafluoroethane being selected such that the blend exhibits a dew point at about  $-32^{\circ}$  F. or a bubble point at about  $-41.5^{\circ}$  F. at about one standard atmosphere of pressure, wherein in the substitute refrigerant

said pentafluoroethane is present in an amount of 59% to 57% by weight and said tetrafluoroethane is present in an amount of 41% to 43% by weight of the combined weight of the pentafluoroethane and tetrafluoroethane on the basis of the combined weights of said pentafluoroethane and said tetrafluoroethane totaling 100%, and

wherein the tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

Ex, F, Claim 31.

### **3. The *Inter Partes* Review of the ‘179 Patent**

Defendants filed a Petition seeking *inter partes* review of the ‘179 Patent before the PTAB on September 22, 2020, which was assigned the review number IPR2020-01660. Ex. H. Defendants’ Petition in IPR2020-01660 includes a section on claim construction. (Ex. H, pp. 13-17). In this Petition, Defendants did not offer constructions for many of the terms they now seek to construe – including the term “refrigerant gases.” *Id.*

On April 20, 2021, the PTAB denied institution of IPR2020-01660, citing their finding that the prior art cited by Defendants was cumulative of art that had already been presented to the Office in prosecution. Ex. M. Accordingly, the ‘179 Patent has retained its validity. Although the PTAB’s opinions are not controlling, they are highly instructive. In its decision to deny institution of IPR2020-01660, the PTAB offered some insight regarding certain of the terms presently in dispute, as discussed *infra*.

### **E. The ‘949 Patent**

The ‘949 Patent, titled “Refrigerant with Lubricating Oil for Replacement of R22 Refrigerant,” is generally directed to an apparatus and method for substituting ozone layer-damaging chlorodifluoromethane with less environmentally damaging refrigerants pentafluoroethane and tetrafluoroethane in chlorodifluoromethane-based air-cooling systems. (Ex. I, Abstract).



### **1. The Prosecution History of the ‘949 Patent**

The application for the ‘949 Patent, U.S. Patent App. No. 15/989,655, was filed on May 25, 2018 and claims priority to provisional application no. 60/501,049 filed on September 8, 2003. (See Ex. I, p. 1). The Prosecution History of the ‘949 Patent indicates that the application underlying the ‘949 Patent was thoroughly examined by the United States Patent and Trademark Office and was determined to meet the conditions for patentability having overcome the USPTO’s scrutiny. See Ex. J.

### **2. The Claims of the ‘949 Patent**

Plaintiffs assert that Defendants’ Dynatemp R-421A product infringes at least 14 claims of the ‘949 Patent. Claim 7 is a method claim, while the remaining independent claims 1 and 14 are apparatus/composition claims. A representative claim, claim 1, is reproduced below:

1. In an apparatus designed for use with chlorodifluoromethane refrigerant, the improvement comprising substituting the chlorodifluoromethane with a refrigerant composition designed to achieve a phase change, the refrigerant composition comprising a combination of refrigerant gases, said refrigerant gases consisting of a blend of tetrafluoroethane and pentafluoroethane, wherein in the substitute refrigerant said pentafluoroethane is present in an amount of 59% to 57% by weight and said tetrafluoroethane is present in an amount of 41% to 43% by weight on the basis of the combined weights of said pentafluoroethane and said tetrafluoroethane totaling 100%, and wherein said tetrafluoroethane is 1,1,1,2-tetrafluoroethane.

Ex. I, Claim 1.

### **3. The Post Grant Review of the ‘949 Patent**

Defendants filed a Petition seeking post grant review of the ‘949 Patent before the PTAB on November 10, 2020, which was assigned the review number PGR2021-00008. Ex. K. Defendants’ Petition in PGR2021-00008 includes a section on claim construction. (Ex. K, pp. 22-25). In this section, Defendants again refrained from offering constructions for many of the terms they now seek to construe – including the term “refrigerant gases.” *Id.*

Following the Board's decision to not institute Defendants' IPR Petition for the '179 Patent, Defendants requested leave to file a motion to withdraw their Petition for post grant review of the '949 Patent on May 11, 2021, which was subsequently granted by the Patent Trial and Appeal Board. *See* Ex. N. In their request, Defendants specified that they did not intend to file any subsequent petitions challenging U.S. Patent No. 10,703,949. *Id.*

#### **F. Level of Skill in the Relevant Art**

As set forth in the Declaration of Dr. Donald Bivens, prepared and filed in support of Plaintiffs' preliminary responses to the IPRs and PGR for the Asserted Patents (Ex. P, ¶ 26), a person of ordinary skill in the art of the field in which the Asserted Patents are directed would have at least a Bachelor of Science degree in chemistry, chemical engineering, or a related field, or, as a substitute, at least three years of work or research experience in refrigerant formulation.

#### **G. The Claim Terms in Dispute**

Plaintiffs allege that Defendants have infringed claims at least 1, 2, 9, and 17-18 of the '706 Patent, claims 21, 23-26, 28-30, 31, 33, and 35-37 of the '179 Patent, and claims 1, 2, 4-8, 10, 11, 13-16 and 18 of the '949 Patent.

The 9 disputed claim terms, as well as the parties' proposed constructions, are set forth in the Disputed Claim Terms chart (Ex. A) on Pages vi-viii, *supra*.

### **III. LEGAL STANDARDS**

#### **A. The Law of Claim Construction**

Claim construction is a matter of law exclusively within the province of the Court. *See Markman v. Westview Instruments*, 517 U.S. 370, 372 (1996). The purpose of claim construction is to "elaborat[e] the normally terse claim language in order to understand and explain . . . the scope of the claims." *Embrex, Inc. v. Serv. Engr. Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000). In *Phillips*, the Federal Circuit, sitting *en banc*, provided direction on claim interpretation. In

interpreting claims, the claim terms are typically given the meaning that the term would have to a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005). The person of ordinary skill is deemed to read the claim terms in the context of the entire patent, including the specification and the file history.<sup>3</sup> *Id.* All disputed claim terms should be construed to be consistent with the specification of which they are a part. *Playtex Prods., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 906 (Fed. Cir. 2005).

### **1. Intrinsic Evidence**

In *Phillips*, the Federal Circuit stated that in performing claim construction, the Court should look first to the intrinsic evidence of the patent, which includes the specification, the file history, and the cited references of the patent. The specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). However, even if the specification “describes very specific embodiments of the invention, [the Federal Circuit has] repeatedly warned against confining the claims to those embodiments.” *Phillips*, 415 F.3d at 1323.

"A technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of the invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning." *Vitronics Corp.*, 90 F.3d 1582 (quoting *Hoechst Celanese Corp. v. BP Chems. Ltd.*, 78 F.3d 1575,

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<sup>3</sup> A patent includes two basic parts: (i) the specification and (ii) the patent claims. The specification typically contains an abstract describing the invention, a recitation of the background and summary of the invention, a set of drawings depicting the invention, and a description of the drawings and preferred embodiments of the invention. The patent claims are the numbered paragraphs at the end of the patent that define the boundaries of the invention and provide notice to the public of those boundaries. *See Phillips*, 415 F.3d at 1312.

1578, 38 USPQ2d 1126, 1129 (Fed. Cir. 1996)).

The court may consider the prosecution history of the patent, if in evidence. *Vitronics Corp.*, 90 F.3d 1582; *Graham v. John Deere*, 383 U.S. 1, 33, 148 USPQ 459, 473, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1965). This history contains the complete record of all the proceedings before the Patent and Trademark Office, including any express representations made by the applicant regarding the scope of the claims. As such, the record before the Patent and Trademark Office is often of critical significance in determining the meaning of the claims. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995).

Moreover, “[b]ecause an IPR proceeding involves reexamination of an earlier administrative grant of a patent, it follows that statements made by a patent owner during an IPR proceeding can be considered during claim construction . . . .” *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1361 (Fed. Cir. 2017).

## **2. Extrinsic Evidence**

Extrinsic evidence consists of all evidence external to the patent and file history, including expert and inventor testimony and dictionaries and treatises that may assist the Court in understanding the technology and determining the accepted meaning of a claim term. *See Phillips*, 415 F.3d at 1317-18.

In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence. *Vitronics Corp.*, 90 F.3d 1583; *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1216, 36 USPQ2d 1225, 1228 (Fed. Cir. 1995) (“In construing the claims we look to the language of the claims, the specification, and the prosecution history. Extrinsic evidence may also be considered, *if needed* to assist in determining the meaning or scope of technical terms in the claims.”) (citations omitted, emphasis added); *Hormone Research Found. v. Genentech, Inc.*, 904 F.2d 1558 (Fed. Cir. 1990),

904 F.2d at 1562, 15 USPQ2d at 1043 ("Claim interpretation involves a review of the specification, the prosecution history, the claims (including unasserted as well as asserted claims), and, *if necessary*, other extrinsic evidence, such as expert testimony.") (citations omitted, emphasis added). In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *Vitronics Corp.*, 90 F.3d 1583.

Moreover, the use of extrinsic evidence is specifically limited in claim construction. "Extrinsic evidence is to be used for the court's understanding of the patent, not for the purpose of varying or contradicting the terms of the claims." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 at 981, quoting *U.S. Indus. Chems., Inc.*, 315 U.S. at 678, 53 U.S.P.Q. (BNA) at 10; *Catalin Corp. of Am. v. Catalazuli Mfg. Co.*, 79 F.2d 593, 594, 27 U.S.P.Q. (BNA) 371, 373 (2d Cir. 1935). "Thus, if the meaning of a disputed claim term is clear from the intrinsic evidence--the written record--that meaning, and no other, must prevail; it *cannot be altered or superseded by witness testimony or other external sources simply because one of the parties wishes it were otherwise.*" *Key Pharm. v. Hercon Labs. Corp.*, 161 F.3d 709 (Fed. Cir. 1998) (emphasis added).

#### IV. ARGUMENT

##### A. "apparatus designed for use with [a] chlorodifluoromethane refrigerant"

| Claim Term  | Plaintiffs' Proposed Construction | Defendants' Proposed Construction         |
|---|-----------------------------------|---|
| "apparatus designed for use with [a] chlorodifluoromethane refrigerant" | Plain and ordinary meaning        | Refrigeration system designed to use R-22 |

The term "apparatus designed for use with [a] chlorodifluoromethane refrigerant" appears in claims 21 and 26 of '179 Patent, claims 1 and 9 of the '706 Patent, and claims 1 and 7 of the '949 Patent and should be given its plain and ordinary meaning in the context of the Asserted Patents. A person of ordinary skill in the art, would readily understand the meaning of this term and construction is unnecessary.

"It is a bedrock principle of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). The Federal Circuit has also long held that terms of a claim should be given the full scope of their ordinary meaning, and the only reason to deviate from that meaning is where a patentee has been unambiguous in using the term in a different way. *Aventis Pharms., Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) ("There is a heavy presumption that claim terms are to be given their ordinary and customary meaning."); *Epistar Corp. v. Int'l Trade Comm'n*, 566 F.3d 1321, 1334 (Fed. Cir. 2009) ("A heavy presumption exists that claim terms carry their full ordinary and customary meaning, unless [a party] can show the patentee expressly relinquished claim scope."). Courts are required therefore to "look to the words of the claims themselves . . . to define the scope of the patented invention." *Aventis* 715 F.3d at 1373.

This particular claim term appears in multiple claims and is used unambiguously throughout the Asserted Patents. As such, there is no reason to deviate or limit the meaning of the term as proposed by Defendants. Since the parties are generally in agreement that the Asserted Patents use the term "chlorodifluoromethane" interchangeably with its commercially known name, "R-22," it appears that the parties' real dispute regarding this term stems from the Defendants' insistence that the term be limited to a "refrigeration system." However, Defendant's attempt to limit this term to a refrigeration system is inconsistent with the express language found in the claims themselves, which is highly improper. Indeed, the Asserted Patents clearly intended for the word "apparatus" to be broader than just a "refrigeration system."

For instance, multiple claims in each of the Asserted Patents explain that the term "apparatus" broadly includes at least "refrigeration equipment, air-conditioning equipment, and HVAC equipment." See Ex. B, Claims 5, 13; Ex. F, Claims 3, 10, 36, 37; Ex. I, Claims 2, 8 ("the

apparatus is selected from the group consisting of refrigeration equipment, air-conditioning equipment, and HVAC equipment”). Defendants all but conceded this point in their unsuccessful IPR Petition for the ‘179 Patent and have admitted that the term “apparatus” is broader than just a “refrigeration system.” Ex. H, p. 28. As the Federal Circuit made clear in *Philips*, “claim terms are normally used consistently throughout the patent, [and] the usage of a term in one claim can often illuminate the meaning of the same term in other claims.” 415 F.3d at 1314.

Here, this particular term is used consistently throughout the Asserted Patents to define equipment designed for use with chlorodifluoromethane that is not limited to just refrigeration systems. For this reason alone, Defendant’s proposed construction is improperly narrowing, is clearly incorrect, and should not be adopted.

Simply put, the Asserted Patents unambiguously use this claim term and neither the claims nor the specification provide any support to improperly limit the scope as suggested by Defendants. As such, this Court should simply find that the term “apparatus designed for use with [a] chlorodifluoromethane refrigerant” does not require special construction, would be easily understood by one of ordinary skill in the art in the context of the Asserted Patents, and should be afforded its plain and ordinary meaning.

#### **B. “refrigerant”**

| Claim Term    | Plaintiffs’ Proposed Construction   | Defendants’ Proposed Construction   |
|---------------|---|---|
| “refrigerant” | This term is not used by itself in the claims and does not need construction apart from the term(s) or phrase(s) with which it is used. | substance used in a refrigeration system that, after compression in the system’s compressor, gives off heat as it changes from gas to liquid in the condenser and, after injection into the evaporator, absorbs heat as it changes from liquid to gas before it is returned to the compressor |

This term is not used by itself in the claims and does not require construction independently

of the terms or phrases with which it is used. Namely, “refrigerant” alone does not appear in any claim as a standalone term; rather, it is always used in one of the other phrases contemplated for construction: “apparatus designed for use with chlorodifluoromethane refrigerant,” “refrigerant composition,” “refrigerant gases,” and “non-refrigerant gas component / non-refrigerant gas components.” To the extent any of these phrases require construction, the term “refrigerant” is properly construed within the given context for each such claim term. *See, e.g., Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (“Because the patentee is required to define precisely what his invention is...it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.”) (internal citations omitted). Here, Defendants’ insistence on construing the term “refrigerant” apart from the terms in which it appears is a clear attempt to divorce the term from the context in which it is actually used in the claims of the Asserted Patents and is improper. Thus, this Court should decline to construe “refrigerant” apart from the plain import of the terms in which “refrigerant” actually appears.

### C. “refrigerant composition”

| Claim Term                | Plaintiffs’ Proposed Construction  | Defendants’ Proposed Construction                |
|---------------------------|--|--|
| “refrigerant composition” | a composition including one or more refrigerant gases and that may include components other than refrigerant gases | a composition including two or more refrigerants |

The term “refrigerant composition” is found in claims 21, 26, 31, 33 and 35 of the ‘179 Patent, claims 1, 9, 17, and 18 of the ‘706 Patent, and claims 1, 5, 6, 7, 11, 13, 14, 15, 16, and 18 of the ‘949 Patent. This claim term is straightforward and the Court should adopt Plaintiff’s construction because it is fully consistent with the express language of the claims in the Asserted Patents and is supported by the specification. In contrast, Defendants’ proposed construction attempts to eliminate the phrase “may include components other than refrigerant gases” despite



clear claim language to the contrary.

As an example, claim 1 of the '706 Patent (Ex. B) expressly states that a "refrigerant composition" comprises "a combination of refrigerant gases" and "wherein the refrigerant composition further comprises non-refrigerant gas components, said non-refrigerant gas components including a lubricating oil...." *See also* Ex. B, claim 9; Ex. F, claims 1 and 8; Ex. I, claims 5, 6, 9, 11, 12, 13, 16, 17, 18, 19, 20. However, claim 21 of the '179 Patent (Ex. F) only requires that the "refrigerant composition" comprises "a combination of refrigerant gases" and is silent as to the requirement of additional non-refrigerant gas components. It is for this reason that Plaintiffs' have proposed that the term is correctly construed as a "composition including one or more refrigerant gases and that may include components other than refrigerant gases." (emphasis added). The language of the claims themselves is self-explanatory and one of ordinary skill in the art would easily understand the meaning of this term to include "refrigerant gases" and that the term may also include "components other than refrigerant gases." Defendants' continued insistence on proposing a construction that eliminates the option of including "components other than refrigerant gases," which is present in a majority of the claims in which this term appears, is confounding.

The specifications also fully comports with the express language of the claims. For instance, the specifications state up front in the "Field of the Invention" that:

"the present invention relates to an improved refrigerant composition, method and apparatus for refrigeration wherein two non-Refrigerant R-22 refrigerants are mixed in a defined ratio such that the temperature-pressure relationship of the mix approximates that of Refrigerant R-22 (chlorodifluoromethane). The mixture is compatible with Refrigerant R-22 (chlorodifluoromethane) so that it can be added to supplement and replace Refrigerant R-22 ( chlorodifluoromethane). A further particularity of the instant invention relates to an improved method and apparatus for refrigeration wherein refrigerant mixture is mixed with a soluble lubricating oil to provide lubrication to the apparatus."

Ex. B, Col. 1:13-31; Ex. F, Col. 1. 17-36; Ex. I, Col. 22-40. This clearly supports the express

language of the claims that the term “refrigerant composition” must be construed to mean a composition of refrigerant gases and the option of further including “non-refrigerant components,” such as a lubricating oil. It is well-settled law that any attempt to read out a preferred embodiment, as Defendants are trying to do here, is improper. *See Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326 (Fed. Cir. 2013) (“a claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct. ”). *See also, On-Line Techs., Inc. v. Bodenseewerk Perkin-Elmer GmbH*, 386 F.3d 1133, 1138 (Fed. Cir. 2004).

Additionally, the PTO, in its order denying institution of the *inter partes* review of the ‘179 Patent, acknowledged that “in an exemplary embodiment, the ‘179 patent describes a refrigerant *composition* having a ratio of about 42 weight percent pentafluoroethane to about 58 weight percent 1,1,1,2-tetrafluoroethane *and including from about 0 to about 20 weight percent of a lubricating oil* that is soluble in R-22, pentafluoroethane, and 1,1,1,2-tetrafluoroethane.” Ex. M, p. 4 (emphasis added). Obviously, the PTO reached the same conclusion as Plaintiff in noting that at least one embodiment of the patent describes a “refrigerant composition” that includes “refrigerant gases” and may include “components other than refrigerant gases” (such as lubricating oil).

For at least these reasons, this Court should adopt Plaintiffs’ proposed construction since it follows the guidance found in the express language of the claims themselves and is fully supported by the specification.

**D. “refrigerant composition designed to achieve a phase change”**

| Claim Term   | Plaintiffs’ Proposed Construction  | Defendants’ Proposed Construction  |
|--|--|--|
| “refrigerant composition designed to achieve a phase change” | a composition including one or more refrigerant gases and that may include components other than refrigerant gases, in which each of the one or more refrigerant gases can undergo a | refrigerant composition designed so that the refrigerants in the composition, after compression in a refrigeration system’s compressor, give off heat as they change from gas to |

|  |  |  |
|--|--|--|
|  | phase change over the range of working temperatures in Table 2 | liquid in the condenser and, after injection into the evaporator, absorb heat as they change from liquid to gas before they are returned to the compressor |
|--|--|--|

The claim term “refrigerant composition designed to achieve a phase change” is found in claims 21 and 26 of the ‘179 Patent, claims 1 and 9 of the ‘706 Patent, and claims 1 and 7 of the ‘949 Patent. Plaintiffs’ proposed construction for this term includes their proposed construction for “refrigerant composition,” as discussed *supra*, and further includes the recitation “in which each of the one or more refrigerant gases can undergo a phase change over the range of working temperatures in Table 2.” This construction fully comports with the intrinsic and extrinsic record in the Asserted Patents and should be adopted by this Court.

The term “phase change” is widely understood to one of ordinary skill in the art (and all parties in this matter) and generally means “a change from one state (solid or liquid or gas) to another without a change in chemical composition.” See [www.thefreedictionary.com/phase+change](http://www.thefreedictionary.com/phase+change). Basically, all apparatuses designed for use with R-22 refrigerant, such as refrigeration, air-conditioning and HVAC equipment, utilize refrigeration components that undergo a phase change from a gas to liquid via a compressor, and then back to a gas via an evaporator, to capture heat from one location and move it to another location. One of ordinary skill in the art would understand that the present invention contemplates an apparatus that utilizes this process to provide refrigeration.

As discussed in more detail *infra* with respect to “refrigerant gases,” exemplary embodiments of the present invention are clearly directed to the use of a refrigerant composition compatible with traditional R-22 systems over the range of normal working temperatures, for

example, over the range of normal working temperatures/pressures found in Table 2 of the specifications of the Asserted Patents. *See* Ex. B, Col. 3:64-Col. 4:5; Ex. F, Col. 4:1-10; Ex. I, Col. 4:14-23; Ex. B, Col. 7:55-67; Ex. F, Col. 7:60-Col. 8:4; Ex. I, Col. 8:13-22. Table 2 presents an example of a range of working temperatures of -60 degrees F to 160 degrees F. Thus, Plaintiffs' proposed construction takes into account the "phase change" contemplated by the claims of the Asserted Patents that occurs at the working temperatures/pressures presented in the specifications.

While Defendants' proposed construction is not incorrect *per se*, Defendants' proposed construction is problematic and may be unhelpful to a jury for at least three reasons. First, Defendants have failed to acknowledge that the "phase change" contemplated by the intrinsic record occurs over the range of normal working temperatures of the apparatus, and in particular the range of working temperatures/pressures presented in Table 2. This is important in clearly defining the temperature and pressure ranges at which the refrigeration gases can undergo a phase change and at which the contemplated apparatuses operate.

Second, Defendants' proposed construction is potentially confusing in that Defendants have attempted to define the term "refrigerant composition" by using the very same term in their proposed construction (Defendants posit that a "refrigeration composition" should be construed as a "refrigeration composition..."). Finally, Defendants' construction for this term does not align with their proposed construction for "refrigerant composition," in that Defendants previously stated that the proper construction for "refrigeration composition" is a "composition including two or more refrigerants" and this construction does not appear with respect to the term "refrigeration composition designed to achieve a phase change."

Plaintiffs' proposed construction for this term is more accurate and would be more helpful and instructive to a jury. For at least these reasons, Plaintiffs' proposed construction should be

adopted.

**E. “refrigerant gases”**

| Claim Term          | Plaintiffs’ Proposed Construction  | Defendants’ Proposed Construction   |
|---------------------|--|---|
| “refrigerant gases” | combination of refrigerant components in the refrigerant composition, each of which can undergo a phase change over the range of working temperatures in Table 2 | refrigerants that is are neither liquid nor solid at standard temperature (68°F) and pressure (one standard atmosphere) |

The term “refrigerant gases” appears in claims 21, 26, and 31 of the ‘179 Patent, claims 1, 9, and 17 of the ‘706 Patent, and claims 1, 5, 6, 7, 11, 13, 14, 16, and 18 of the ‘949 Patent. Plaintiffs’ proposed construction should be adopted because it is fully consistent with the use of the term in the claims, is fully consistent with the specification, and it would be helpful to construe this term to help a jury understand the use of the term in the Asserted Patents.

Turning to the specifications of the Asserted Patents, the term “refrigerant gases” is used to denote a “combination of refrigerant components in the refrigerant composition, each of which can undergo a phase change over the range of working temperatures in Table 2.” For example, the specifications of the Asserted Patents all specify that the “invention provides a mixture of at least two refrigerants” that “[possess] a temperature-pressure profile that approximates that of Refrigerant R-22 (chlorodifluoromethane) over the operating range of ambient temperatures usually encountered by air conditioning units or other apparatus utilizing Refrigerant R-22 (chlorodifluoromethane) as a refrigerant.” Ex. B, Col. 3:62-Col. 4:13; Ex. F, Col. 3:34-Col.4:18; Ex. I, Col. 4:12-32. The specifications of the Asserted Patents then *explicitly* define the range of normal air-conditioner working temperatures in the following passage:

“1,1,1,2-tetrafluoroethane and pentafluoroethane are mixed with the napthenic oil lubricant at set ratios such that the temperature-pressure profile of the mixture is similar to that of

Refrigerant R-22 (chlorodifluoromethane), over the normal operating range of air-conditioners. Table 2 summarizes the results of tests of the temperature-pressure profiles of various mixes of 1,1,1,2-tetrafluoroethane and pentafluoroethane over the the range of normal air-conditioner working temperatures, from -60 degree. F. to 160. Degree F.”

Ex. B, Col. 7:55-67; Ex. F, Col. 7:60-Col. 8:4; Ex. I, Col. 8:13-22 (emphasis added). Table 2 is reproduced below confirming the range of working temperatures as -60 degrees F to 160 degrees F.

TABLE 2

| Temp (F.) | P (60-40) | P (58-42) | P (55-45) | P (R-22) |
|-----------|-----------|-----------|-----------|----------|
| -60       | 8.982     | 8.81      | 8.552     | 8.836    |
| -55       | 10.36     | 10.16     | 9.87      | 10.19    |
| -50       | 11.9      | 11.68     | 11.35     | 11.7     |
| -45       | 13.62     | 13.37     | 12.99     | 13.39    |
| -40       | 15.52     | 15.24     | 14.82     | 15.26    |
| -35       | 17.63     | 17.32     | 16.84     | 17.34    |
| -30       | 19.96     | 19.61     | 19.08     | 19.62    |
| -25       | 22.52     | 22.13     | 21.54     | 22.14    |
| -20       | 25.33     | 24.9      | 24.25     | 24.91    |
| -15       | 28.41     | 27.93     | 27.21     | 27.93    |
| -10       | 31.76     | 31.23     | 30.44     | 31.23    |
| -5        | 35.42     | 34.83     | 33.96     | 34.82    |
| 0         | 39.39     | 38.74     | 37.79     | 38.73    |
| 5         | 43.69     | 42.98     | 41.94     | 42.96    |
| 10        | 48.34     | 47.57     | 46.43     | 47.54    |
| 15        | 53.36     | 52.52     | 51.27     | 52.48    |
| 20        | 58.76     | 57.85     | 56.5      | 57.79    |
| 25        | 64.57     | 63.58     | 62.11     | 63.51    |
| 30        | 70.8      | 69.73     | 68.14     | 69.65    |
| 35        | 77.48     | 76.33     | 74.61     | 76.22    |
| 40        | 84.62     | 83.38     | 81.52     | 83.26    |
| 45        | 92.25     | 90.9      | 88.91     | 90.76    |
| 50        | 100.4     | 98.93     | 96.79     | 98.76    |
| 55        | 109       | 107.5     | 105.2     | 107.3    |
| 60        | 118.2     | 116.6     | 114.1     | 116.3    |
| 65        | 128       | 126.2     | 123.6     | 125.9    |
| 70        | 138.4     | 136.5     | 133.6     | 136.1    |
| 75        | 149.3     | 147.3     | 144.3     | 146.9    |
| 80        | 160.9     | 158.8     | 155.6     | 158.3    |
| 85        | 173.2     | 170.9     | 167.5     | 170.4    |
| 90        | 186.1     | 183.7     | 180.1     | 183.1    |
| 95        | 199.8     | 197.2     | 193.3     | 196.5    |
| 100       | 214.2     | 211.4     | 207.3     | 210.6    |
| 105       | 229.3     | 226.4     | 222.1     | 225.5    |
| 110       | 245.3     | 242.2     | 237.6     | 241.1    |
| 115       | 262       | 258.7     | 253.9     | 257.5    |
| 120       | 279.6     | 276.1     | 271       | 274.7    |
| 125       | 298.1     | 294.4     | 289       | 292.7    |
| 130       | 317.5     | 313.6     | 307.8     | 311.6    |
| 135       | 337.8     | 333.7     | 327.6     | 331.4    |
| 140       | 359.1     | 354.8     | 348.3     | 352.1    |
| 145       | 381.4     | 376.8     | 370.1     | 373.7    |
| 150       | 404.8     | 400       | 392.8     | 396.4    |
| 155       | 429.3     | 424.2     | 416.7     | 420      |
| 160       | 454.9     | 449.5     | 441.6     | 444.7    |

Thus, it is indisputable that the Asserted Patents teach that the “refrigerant gases” are those refrigerant components that undergo a phase change at the aforementioned working temperatures of -60 degrees F to 160 degrees F, such that these components change from a liquid to a gas and a gas to a liquid at some point along the range of normal working temperatures/pressures. Thus, the

refrigerant component or gas is designed to undergo a phase change between gas and liquid over such temperature ranges.

Defendants' proposed construction for this term – "refrigerants that is [sic] are neither liquid nor solid at standard temperature (68°F) and pressure (one standard atmosphere)" – cannot be adopted because Defendants attempt to improperly limit the range at which a refrigerant component is a gas at an arbitrary temperature of 68 degrees F. Neither the claims nor the specifications of the Asserted Patents support this assertion by Defendants. Further highlighting the complete lack of support for Defendants' proposed construction, Defendants have stated in the Joint Claim Construction Statement (Doc. No. 124, Ex. 4) that they can only point to extrinsic evidence to support the same. As noted above in Section III.A.2, the Federal Circuit has long held that "in most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence." *Vitronics*, 90 F.3d at 1583. Here, there is no ambiguity in the intrinsic record that would necessitate the use of extrinsic evidence to support Defendants' attempt to insert an arbitrary temperature of 68 degrees F into the construction and certainly no ambiguity that would support Defendants' proposal to ignore the specification and rely solely on extrinsic evidence. The intrinsic record clearly sets out the range of working temperatures under which refrigerant components could undergo a phase change in the apparatuses to which the invention is directed and contribute to the exchange of heat in a refrigeration cycle – for example, the range listed in Table 2 of -60 degrees F to 160 degrees F.

Defendants' proposed construction would actually read out many well-known refrigerant compositions that undergo a phase change to a gaseous state at temperatures much higher than 68 degrees F (at one standard atmosphere of pressure). For instance, R-11 has a boiling point of about

75 degrees F, R-113 has a boiling point of about 118 degrees F, and R-123 has a boiling point of about 82 degrees F. See [https://inspectapedia.com/aircond/Refrigerant-Pressures-Airgas\\_PTCharts.pdf](https://inspectapedia.com/aircond/Refrigerant-Pressures-Airgas_PTCharts.pdf). All of these chemicals are considered by ASHRAE to be “refrigerants,” have a boiling point higher than the arbitrary limit that Defendants are attempting to introduce, and *undergo a phase change in the working range of temperatures present in Table 2*.

Defendants are attempting to improperly limit the scope of the term “refrigerant gases” to refrigerants that are in a gaseous state at 68 degrees F to advance an invalidity argument that has already been resolved before the PTO. Indeed, the PTO has already affirmatively stated in an order denying institution of the *inter partes* review of the ‘179 Patent that the Singh reference (U.S. Patent Publication No. 2003/0062508), in which Singh discloses the use of refrigerants pentafluoroethane and tetrafluoroethane in combination with cyclopentane (boiling point of about 120 degrees F) is cumulative of prior art previously presented and that cyclopentane is a refrigerant.<sup>4</sup> Despite the PTO’s clear findings, Defendants are attempting to re-litigate this failing invalidity argument via construction of the term “refrigerant gas” in this case by attempting to narrowly interpret this term such that cyclopentane would not be considered a refrigerant gas. This is highly improper.

Defendants’ proposed construction is contrary to well-established claim construction principles, as it entirely ignores the intrinsic record, and is nothing more than a transparent attempt to reintroduce an invalidity position that has been repeatedly rejected by the PTO. As such, Defendants’ proposed construction should be rejected by the Court. Instead, this Court should

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<sup>4</sup> “In a preferred embodiment, Singh describes a refrigerant composition comprising pentafluoroethane, 1,1,1,2-tetrafluoroethane and cyclopentane refrigerants, and a lubricant selected from the group consisting of mineral oil alkylbenzene oil, white (paraffinic) oil, and mixtures of two or more thereof.” Ex. M, p. 13 (emphasis added).



adopt the Plaintiffs’ proposed construction as it is fully supported by the intrinsic and extrinsic evidence in this case as explained *supra*.

**F. “non-refrigerant gas component / non-refrigerant gas components”**

| Claim Term   | Plaintiffs’ Proposed Construction  | Defendants’ Proposed Construction   |
|--|--|---|
| “non-refrigerant gas component / non-refrigerant components” | components in the refrigerant composition, other than refrigerant gas components, that do not undergo a phase change over the range of working temperatures in Table 2 | component of a refrigerant composition that is not a refrigerant gas / components of a refrigerant composition that are not refrigerant gases |

The term “non-refrigerant gas component / non-refrigerant gas components” appears in claims 1, 9, and 17 of the ‘706 Patent and claims 5, 6, 11, 13, 16 and 18 of the ‘949 Patent. As with Plaintiffs’ proposed constructions for “refrigerant gases,” Plaintiffs’ proposed construction for “non-refrigerant gas component(s)” should be adopted because it is fully consistent with the use of the term in the claims, is fully consistent with the specification, and it would be helpful to construe this term to better help a jury understand the use of the term in the Asserted Patents.

As the term “refrigerant gases” should be construed as a "combination of refrigerant components in the refrigerant composition, each of which can undergo a phase change over the range of working temperatures in Table 2” the term “non-refrigerant gas component(s)” should be conversely construed as those “components in the refrigerant composition, other than the refrigerant gas components, that do not undergo a phase change over the range of working temperatures in Table 2.”

It appears that the parties are generally in agreement that this term should be construed as those components of the refrigeration composition that are not refrigerant gas components. However, similarly to the parties proposed constructions for the terms “refrigerant composition designed to achieve a phase change” and “refrigerant gases,” the key feature missing from

Defendants’ proposed construction for this term is the “phase change” contemplated by the intrinsic record that the refrigerant gases undergo over the normal working temperatures of the apparatus, for example the working temperatures/pressures presented in Table 2, and for which the non-refrigerant gas component(s) fail to undergo. *See* Ex. B, Col. 3:64-Col. 4:5; Ex. F, Col. 4:1-10; Ex. I, Col. 4:14-23; Ex. B, Col. 7:55-67; Ex. F, Col. 7:60-Col. 8:4; Ex. I, Col. 8:13-22; Ex. B, Col. 7:55-67; Ex. F, Col. 7:60-Col. 8:4; Ex. I, Col. 8:13-22. The inclusion of this important element for the construction of this claim term should be adopted as part of Plaintiffs’ proposed construction because the temperature profile such as expressed in Table 2 will help the jury identify which components of the refrigeration composition are refrigerant gases and which components are non-refrigerant gas component(s).

For at least this reason, this Court should adopt Plaintiffs’ proposed construction, as Plaintiffs’ construction is more consistent with the intrinsic record, is more accurate, and would be more helpful to a jury than Defendants’ proposed construction.

#### **G. “dew point”**

| Claim Term  | Plaintiffs’ Proposed Construction  | Defendants’ Proposed Construction  |
|-------------|--|--|
| “dew point” | the temperature at which the vapor of a liquid forms the first bubble of liquid or dew, commencing condensation of that liquid | the temperature at which the last drop of a liquid boils at a specified pressure |

The term “dew point,” appears in the Asserted Claims of the ‘706 and the ‘179 Patents, and is properly construed as “the temperature at which the vapor of a liquid forms the first bubble of liquid or dew, commencing condensation of that liquid.” Plaintiffs’ proposed construction is consistent with the intrinsic record, including the claim language and the specifications of the ‘706 and ‘179 Patents, which repeatedly reference “a dew point at about -32° F.” Plaintiffs’ proposed

construction is also supported by the industry definition of this term. The website Pediaa.com explains, “the dew point is the temperature at which the first drop of dew is formed from vapor commencing the condensation of the liquid.” Ex. O; *see also* McGraw Hill Dictionary of Scientific and Technical Terms, 6th Ed. (2002) (defining dew point: “The temperature and pressure at which a gas begins to condense to a liquid.”).

Defendants’ construction, “the temperature at which the last drop of a liquid boils at a specified temperature” is not technically incorrect, in the sense that the temperature at which the first bubble of liquid or dew appears as a gas is cooling is the *same* temperature at which the last temperature of a liquid would boil. However, to construe the claim term from a boiling point framework would be unnecessarily complicated, and, more importantly, confusing to a jury when the word “dew,” signaling condensation, is in the term itself. Indeed, in their Petition for *inter partes* review of the ‘179 Patent, Defendants themselves define “dew point” as “the point at which the first drop of a gaseous mixture begins to condense, expressed as a temperature at constant pressure.” Ex. H, p. 14. This definition is more similar to Plaintiffs’ construction than Defendants’, and Defendants should be required to adhere to their prior interpretation. Accordingly, Plaintiffs’ straightforward proposed construction should be adopted by the Court.

#### **H. “bubble point”**

| Claim Term     | Plaintiffs’ Proposed Construction  | Defendants’ Proposed Construction  |
|----------------|--|--|
| “bubble point” | the temperature at which a liquid makes the first bubble of vapor, commencing vaporization of the liquid | the temperature at which a liquid first begins to boil at a specified pressure |

The term “bubble point,” appears in the ‘706 and the ‘179 Patents and is properly construed as “the temperature at which a liquid makes the first bubble of vapor, commencing vaporization of the liquid.” Plaintiffs’ proposed construction is consistent with the intrinsic record, including

the claim language and the specifications of the ‘179 and ‘706 Patents, which consistently describe “a bubble point at about -41.5° F.” Plaintiffs’ proposed construction is also supported by the extrinsic record. The website Pediaa.com explains, “The bubble point is the temperature at which a solution makes the first bubble of vapor, commencing the vaporization of that solution[.]” Ex. O; *see also* McGraw Hill Dictionary of Scientific and Technical Terms, 6th Ed. (2002) (defining bubble point: “In a solution of two or more components, the temperature at which the first bubbles of gas appear.”).

As above with “dew point,” Defendants’ construction, “the temperature at which a liquid first begins to boil at a specified pressure” is not technically incorrect, because the temperature at which a liquid makes the first bubble of vapor, commencing vaporization of the liquid, is the same temperature at which a liquid first begins to boil. However, again, to construe the claim term from a boiling point framework lends itself to confusion. Specifically, as explained on the website Pediaa.com regarding bubble point, “If it is a pure liquid, then the bubble point is called the boiling point. But if the solution is composed of two or more components, the boiling point of the solution is different from the pure solvent and is called the bubble point.” Here, where the Asserted Patents contemplate *mixtures* of components rather than a single pure component, the appropriate inquiry is the bubble point, not the boiling point, which is too narrow in scope. Defendants’ proposed construction reciting “boil” is likely to confuse or mislead a jury.

Further, in their Petition for *inter partes* review of the ‘179 Patent, Defendants themselves defined “bubble point” as “the point at which the first drop of a liquid mixture begins to vaporize.” Ex. H, pp. 14-15. This definition is more similar to Plaintiffs’ construction than Defendants’, and Defendants should be required to adhere to their prior interpretation. Accordingly, Plaintiffs’ straightforward proposed construction should be adopted by the Court.

## I. “glide”

| Claim Term | Plaintiffs’ Proposed Construction                     | Defendants’ Proposed Construction  |
|------------|---|--|
| “glide”    | the difference between the bubble point and dew point | the difference between the bubble point and dew point at the same pressure |

The claim term “glide” appears in certain Asserted Claims of the ‘179 Patent only and is properly construed as “the difference between the bubble point and dew point.” Plaintiffs’ proposed construction is consistent with the intrinsic record, including the claim language and the specification of the ‘179 Patents, which consistently describes “a glide at about 9.5°F” which is reasonable and consistent given the dew point and bubble point also recited in the claims.

Defendants’ proposed construction for “glide,” “the difference between the bubble point and dew point at the same pressure,” incorporates an additional limitation that renders the construction redundant, namely “at the same pressure.” First, looking to the claims themselves, each instance of “glide” the claims of the ‘179 Patent is *only* in conjunction with a specified pressure, namely, “about one standard atmosphere of pressure.” For example, Claim 24 of the ‘179 Patent recites a blend that “exhibits a glide at about 9.5° F.” Ex. F, Claim 24. Claim 24 depends from Claim 21, which recites that the blend exhibits certain qualities “at about one standard atmosphere of pressure.” *Id.* Therefore, it is inappropriate to incorporate the “pressure” limitation present in Defendants’ proposed construction, because it is already present in the claims.

Further, in their Petition for *inter partes* review of the ‘179 Patent, Defendants themselves define glide, as known in the art, as “the difference between the bubble point and the dew point of a zeotropic refrigerant mixture.” Ex. H, p. 16. Defendants further clarify that “a zoetrope [sic] is a refrigerant mixture or blend that boils across a range of temperatures at any given pressure.” *Id.* As demonstrated by Defendants and proposed here by Plaintiffs, the definition itself need not

incorporate a limitation, such as “at a given pressure,” where that limitation is already present in the claim term, as this renders the term redundant in the context of the claim. Therefore, Plaintiffs’ construction should be adopted.

## **V. CONCLUSION**

For the foregoing reasons, Plaintiffs respectfully request that the Court adopt their proposed constructions for 7 of the 9 claim terms in dispute, and conclude that the term “apparatus designed for use with [a] chlorodifluoromethane refrigerant” should be given its plain and ordinary meaning, and the term “refrigerant” does not need construction apart from the terms or phrases in which it is used.

Respectfully submitted this 4th day of June 2021.

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**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF NORTH CAROLINA  
WESTERN DIVISION**

**Case Number: 5:20-CV-00142**

DYNATEMP INTERNATIONAL, INC. )  
and FLUOROFUSION SPECIALTY )  
CHEMICALS, INC., )

Plaintiffs, )

v. )

RMS OF GEORGIA, LLC d/b/a Choice )  
Refrigerants, KENNETH M. PONDER and )  
LENZ SALES & DISTRIBUTING, INC., )

Defendants. )

- - -

R421A, LLC and RMS OF GEORGIA, )  
LLC d/b/a CHOICE REFRIGERANTS, )

Plaintiffs, )

v. )

DYNATEMP INTERNATIONAL, INC.; )  
HAROLD B. KIVLAN, IV; WILLIAM )  
GRESHAM; FLUOROFUSION )  
SPECIALTY CHEMICALS, INC.; and )  
DAVID COUCHOT, )

Defendants. )

**PLAINTIFFS R421A, LLC AND RMS  
OF GEORGIA, LLC'S OPENING  
CLAIM CONSTRUCTION BRIEF**

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day electronically filed the foregoing PLAINTIFFS R421A, LLC and RMS of GEORGIA, LLC'S OPENING CLAIM CONSTRUCTION BRIEF with the Clerk of Court using the CM/ECF system, which will automatically send email notification of such filing to all attorneys of record.

Dated this 4th day of June 2021.

/s/ Joseph W. Staley